

# Exhibit A-5



**Shana M. Irby, B.A., B.S.**  
Department of Justice  
Drug Enforcement Administration  
Office of Forensic Sciences

**Sr. Forensic Chemist / QAS**  
Western Laboratory  
San Francisco, CA

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## AREA OF EXPERTISE

### Forensic Discipline

#### Controlled Substances

#### Expert Testimony

- 13 times in federal court
- Four in state court
- Once in county court

## PROFESSIONAL EXPERIENCE

### DRUG ENFORCEMENT ADMINISTRATION

*Senior Forensic Chemist*  
Western Laboratory (Pleasanton, CA)  
2009-present

- Performs analysis of controlled substances including data interpretation, instrument maintenance, method validation and preparation of laboratory reports. Assists court officials and law enforcement personnel with court related issues such as the technical aspects of analysis, interpretation of the results, translation of the technical terminology into general terms, and testifying if necessary. Total number of exhibits analyzed is over 3000.

#### Training

- DEA Clandestine Laboratory Site Safety Officer Sept 2016
- Agilent LTM instrumentation Jan 2016
- ASCLD-LAB refresher on Measurement and Traceability Oct 2014
- Agilent basic MS interpretation Sept 2014
- Waters UPLC Instrumentation and Software Dec 2012
- 8th International Conference on Forensic Inference and Statistics July 2011
- DEA Instructor Development Course #47 Feb 2011

*Senior Forensic Chemist/ Quality Assurance Specialist*  
Western Laboratory (San Francisco, CA)  
2009-2015

- Performs analysis of controlled substances including data interpretation, instrument maintenance, method validation and preparation of laboratory reports. Assists court officials and law enforcement personnel with court related issues such as the technical aspects of analysis, interpretation of the results, translation of the technical terminology into general terms, and testifying if necessary.
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Made sure the laboratory maintained American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) certification by maintaining current policy and ensuring the laboratory is providing accurate, impartial, scientifically sound and relevant laboratory results and assistance to law enforcement and criminal justice organizations.

*Training*

- ASQ Root Cause Analysis Training August 2009
- ASQ Corrective Action Training May 2010
- ASCLD/LAB Assessor Training Jan 2011, refresher Mar 2013,

*Forensic Chemist*

*Western Laboratory (San Francisco, CA)*

*2003-2009*

- Performs analysis of controlled substances including data interpretation, instrument maintenance, method validation and preparation of laboratory reports. Assists court officials and law enforcement personnel with court related issues such as the technical aspects of analysis, interpretation of the results, translation of the technical terminology into general terms, and testifying if necessary.

*Training*

- DEA Western Laboratory Forensic chemist training program Nov 2003-Mar 2004.
- Agilent GC-MSD Chemstation & Instrument Operation, March 2004
- DEA Basic NMR Course, April 2004 and in 2006
- DEA Basic Forensic Sciences School, August 2004
- GC/MS interpretation in June 2006
- Practical Capillary Electrophoresis July 2007
- DEA Clandestine Laboratory Safety Certification, 2004-present
- DEA Basic LC/MS Course Aug 2008
- Agilent Introduction to Liquid Chromatography and HPLC Chemstation, June 2001

**John I. Haas, Inc.**

*Quality Assurance Supervisor (Yakima, WA)*

*1993-2003*

- Supervise and perform the analysis of hops and hop products. Help maintain ISO 9001 certification by writing, reviewing, and updating policy and procedures.

*Training*

- Agilent Introduction to Gas Chromatography May 2001
- Agilent Introduction to Liquid Chromatography and HPLC Chemstation, June 2001

## **EDUCATION AND CERTIFICATIONS**

**Central Washington University**

- Bachelor of Arts (B.A.) in Chemistry-1993
- Bachelor of Science (B.S.) in Biology-1993

*Certification(s)*

- DEA Clandestine Laboratory Safety Certification 2004-present

- DEA Site Safety Officer 2016-present

## PRESENTATIONS AND LECTURES

- Presentation/Demonstration, Field Test Training
  - Department of Homeland Security, State and Local Law Enforcement, Coast Guard, California Highway Patrol, and local Sheriff's Office (19 Times total) 2004-2012
- Presentation/Demonstration, Clandestine Laboratory Certification
  - State and Local Certification School, Jan 2007 and Nov 2009
- Presentation/Demonstration, CNOA Clandestine Laboratory Cook Nov 2015

## PUBLICATIONS

- "Development of Near-Infrared Calibrations for Hop Analysis", Garden, S. W., Pruneda, T., Irby, S., Hysert, D. W.. J. Am. Soc. Brew. Chem. 58(2):73-82, 2000.